

Notice of Allowability

Application No.

10/074,495

Examiner

Connie C. Yoha

Applicant(s)

PARKER ET AL.

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 6/8/04.
2. ☒ The allowed claim(s) is/are 1,2,4-6,8,9,11-14,16-19,21,22,24 and 25.
3. ☒ The drawings filed on 08 January 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.


THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 704.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


CONNIE C. YOHA
PRIMARY EXAMINER

DETAILED ACTION

Response to Arguments

1. Examiner took notice of the remarks and amendments made by applicant filed on 6/8/04.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Neal Osborn on 7/22/04.

3. The application has been amended as follows:

- A. Replace the claim 1 with:

Claim 1 (twice amended): A semiconductor device comprising:
a plurality of multi level flash memory cells, wherein
said cells have one erased state and three
programmed states; wherein said cells are
programmable from a first programmed state directly
to a second programmed state by writing two bits of
information to the cell being programmed; and
wherein programming from said first programmed
state directly to said second programmed state
comprises: a) reading existing cell storage condition
from said cell; b) combining said existing cell storage
condition with programming information to produce
new information; and c) programming said new
information into said cell, without an interposing erase
operation.

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B. Replace claim 14 with:

Claim 14 (third amended): A semiconductor device comprising:
a plurality of flash memory cells, wherein said cells have one erased state and three programmed states; a page buffer coupled to said plurality of flash memory cells; wherein said cells are programmable from a first programmed state directly to a second programmed state by a method comprising: a) reading existing cell storage condition from said cell into said page buffer; b) combining, in said page buffer, existing said cell storage conditions with programming information to produce new information; and c) writing two bits of said new information to said cell being programmed, without an interposing erase operation.

C. Cancel claim 15.

4. Claims 1-2, 4-6, 8-9, 11-14, 16-19, 21-22, 24-25 pending.

REASONS FOR ALLOWANCE

5. The following is an examiner's statement of reasons for allowance:

Claims 1-2, 4-6, 8-9, 11-14, 16-19, 21-22, 24-25 are considered allowable since the prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. The prior art does not teach the claimed invention having in combination with other features; a plurality of multi level flash memory cells, having one erased and three programmed states; wherein the cells are programmable from a first programmed state directly to a second programmed state comprising: reading existing cell storage condition from said cell into said page buffer; combining, in

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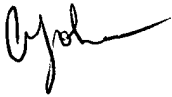
the page buffer, existing cell storage conditions with programming information to produce new information; and writing two bits of the new information to the cell being programmed, without an interposing erase operation.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571) 272-1799. The examiner can normally be reached on Mon. - Fri. from 8:00 A.M. to 5:30 PM. The examiner's supervisor, David Nelms, can be reached at (571) 272-1787. The fax phone number for this Group is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov> should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



C.Yoha

July 2004



**CONNIE C. YOHA
PRIMARY EXAMINER**